

Appl. No. 10/770,258
Examiner: CHEN, WEN YING PATTY, Art Unit 2871
In response to the Office Action dated May 19, 2006

Date: August 21, 2006
Attorney Docket No. 10113711

REMARKS

Responsive to the Office Action mailed on May 19, 2006 in the above-referenced application, Applicant respectfully requests amendment of the above-identified application in the manner identified above and that the patent be granted in view of the arguments presented. No new matter has been added by this amendment.

Present Status of Application

Claims 1-3, 7-10 and 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf et al (US 2002/0130985, hereinafter "Weindorf") in view of Nakatsuka (US 6,208,521). Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf in view of Nakatsuka and in further view of Mizuno (US 6,398,560). Claims 5-6 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf in view of Nakatsuka and in further view of Kakuguchi et al (US 2004/0254001, hereinafter "Kakuguchi").

In this paper, claims 1-6, 8, and 15-19 are canceled. Claim 7 is amended to recite a plurality of corresponding opposing openings formed on the first side and the second side to expose the lead wires, an LED coupled to the lead wires through the openings on the first side, and a Zener diode coupled to the lead wires through the corresponding openings on the second side, wherein the LED and the Zener diode are oppositely disposed on the lead wires on the first side and the second side respectively. Claim 14 is amended to recite a plurality of opposing openings are provided in the first and second sides of the insulating substrate exposing the lead wires, and the LED and Zener diode are each coupled to the lead wires through the openings, wherein the LED is coupled to the lead wires through the openings on the first side and the Zener diode is coupled to the lead wires through the corresponding openings on the second side opposite to the LED. Claim 21 is amended to correspond with amended claim 14. Support for the amendments can be found at least in Figs. 9 of the application. Thus, on entry of this amendment, claims 7, 9-14, and 20-22 remain in the application.

Reconsideration of this application is respectfully requested in light of the amendments and the remarks contained below.

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Response to Arguments

On page 9 of the office action, the Examiner indicates that Applicant's arguments filed on February 28, 2006, with respect to the rejections of all the claims were persuasive. The Examiner therefore presented new grounds for rejections.

As will be set forth below in detail, Applicant submits that the present rejections of claims 7, 9-14, and 20-22 are essentially the same as those in the previous rejections, and should be withdrawn for essentially the same reasons.

The rejections of claims 7, 9-14, and 20-22 are insufficient, insofar as they do not comply with the requirements of MPEP 707.07 et seq., which requires that all rejections be stated with completeness and clarity.

MPEP 707.07(d) requires that the grounds of a rejection be "fully and clearly stated." The office action fails to meet this requirement in the present application in connection with claims 7, 9-14, and 20-22.

In the office action, the Examiner rejects each of the independent claims 7 and 14 over a combination of Weindorf in view of Nakatsuka. For example, in the rejection of claim 7, the Examiner relies on the embodiment shown in Fig. 3 of Weindorf to teach a body (element 302), a circuit board (316) disposed on the body, having a substrate (paragraph 0032), a plurality of lead wires with a plurality of openings exposing the lead wires (paragraph 0025, wherein signal wires are provided on the flexible circuit board and are exposed by thermal vias, which are openings of the circuit board), an LED (element 104) and a Zener diode (paragraph 0025), each coupled to the lead wires through the openings, wherein the LED is coupled to the lead wires through the openings on the first side, and the Zener diode is couple to the lead wires through the openings on the second side, wherein the LED and the Zener diode are disposed on the lead wires on the first and second side respectively (paragraph 0025). See pages 3-4 of the office action.

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Claim 14 is rejected using a similar argument with reference to both Fig. 3 and paragraph 0025 of Weindorf. See page 5 of the office action. Nakatsuka is relied upon in the rejection of both claims 7 and 14 to teach lead wires enclosed by the substrate.

Applicant submits that paragraph 0025, which is relied upon to teach the openings recited in claims 7 and 14, and Fig. 3, which is relied upon to teach other recited features of said claims, describe two mutually exclusive embodiments in Weindorf and therefore cannot be used in combination to show an arrangement of elements as set forth in the claims. Namely, Applicant respectfully submits that it is impermissible to pick and choose different elements from multiple mutually exclusive embodiments to deprecate the inventions recited in claims 7 and 14.

Applicant therefore requests that the rejection of claims 7, 9-14, and 20-22 be withdrawn.

The office action fails to establish a *prima facie* case of obviousness in that it does not establish suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings.

MPEP 2142 reads in part:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In the rejections of each of the independent claims 7 and 14, the office action states:

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... it would have been obvious to construct a liquid crystal module as taught by Weindorf et al. wherein a plurality of leads are enclosed by the substrate comprising a plurality of openings exposing the leads as taught by Nakatsuka, since Nakatsuka teach that such film carrier allows the forming of laminated structure of semiconductor parts with using only one single film carrier for connecting the parts (Column 2, lines 35-47).

See page 4 of the office action.

Nakatsuka discloses a laminate type mounting structure for semiconductor elements. This is unrelated and non-analogous to a flexible backlighting LED structure as described by Weindorf. There is no discussion of an LCD module, an LED, or a Zener diode in Nakatsuka, nor is there any teaching or suggestion as to how or why a mounting structure for semiconductor elements such as that described by Nakatsuka would be applied to an LCD module. In fact, the only suggestion or motivation to make such a combination comes from Applicant's own disclosure.

Applicant therefore submits that there is no suggestion or motivation to combine the references in the manner set forth in the rejections. Withdrawal of the rejections of claims 7, 9-14, and 20-22 is respectfully requested.

Even when combined in the manner stated by the Examiner, the cited references fail to teach or suggest of the limitations of claims 14 and 20.

As amended, claim 7 recites a liquid crystal module comprising a body; and a circuit board disposed on the body, comprising a substrate having a first side and a second side, a plurality of lead wires enclosed by the substrate between the first side and the second side, a plurality of corresponding opposing openings formed on the first side and the second side to expose the lead wires, an LED coupled to the lead wires through the openings on the first side, and a Zener diode coupled to the lead wires through the corresponding openings on the second side, wherein the LED and the Zener diode are oppositely disposed on the lead wires on the first side and the second side respectively.

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Claim 14 recites a liquid crystal module, comprising a body; and a circuit board comprising: an insulating substrate comprising a first side and a second side; a plurality of lead wires enclosed by the insulating substrate; an LED; and a Zener diode; wherein a plurality of corresponding opposing openings are provided in the first and second sides of the insulating substrate exposing the lead wires, and the LED and Zener diode are each coupled to the lead wires through the openings, wherein the LED is coupled to the lead wires through the openings on the first side and the Zener diode is coupled to the lead wires through the corresponding openings on the second side opposite to the LED.

Thus, in both claims 7 and 14, a plurality of lead wires enclosed by a substrate, and **both** a LED and a Zener diode are coupled to the lead wires **through corresponding opposing openings** in the substrate.

In the rejections, the Examiner relies on paragraph 0025 of Weindorf to teach "the LED is coupled to the lead wires through openings on the first side, and a Zener diode coupled to the lead wires through the openings on the second side." See page 4 of the office action.

However, paragraph 0025 of Weindorf describes that the "top and bottom side of the flexible circuit board 102 may be an exposed ground plane interconnected by thermal vias with some signal lines connecting the devices." Given that the signal routing lines are disposed either on the top or the bottom side of the substrate, and each of the LED and control circuit are also disposed either on the top or the bottom side of the substrate, one or both of the LED and the control circuit must be on the same side of the substrate as the signal routing lines, and is therefore not connected to the signal routing lines through the vias. See paragraphs 0025, 0032 and 0038 of Weindorf. There is no teaching or suggestion that **both** of LED and the control circuit are connected to the signal routing lines **through corresponding opposing openings** in Weindorf.

Applicant further submits that this feature is not found in the other references cited by the Examiner. In particular, Nakatsuka does not teach or suggest a LED and Zener diode are coupled to lead wires through corresponding opposing openings in a substrate. Furthermore, it

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is noted that none of the openings disclosed by Nakatsuka are corresponding opposing openings, and that none of the connection parts 6/7 are opposite each other.

It is therefore Applicant's belief that even when taken in combination, the prior art references relied upon by the Examiner do not teach or suggest all the limitations of claims 7 and 14. For at least this reason, a *prima facie* case of obviousness cannot be established in connection with these claims. Furthermore, as it is Applicant's belief that a *prima facie* case of obviousness is not established for claims 7 and 14, the Examiner's arguments in regard to the dependent claims are considered moot and are not addressed here. Allowance of claims 7, 9-14, and 20-22 is respectfully requested.

Conclusion

The Applicant believes that the application is now in condition for allowance and respectfully requests so.

Respectfully submitted,



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